Calvert Cliffs Nuclear Power Plant
Constellation Generation Group, LLC

1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

Constellation Energy Group

October 14, 2003

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
License Amendment Request: Extension of Engineered Safety Features Surveillance Testing

REFERENCE: (a) Westinghouse Topical Report WCAP-15830-P, "Staggered Integrated ESF Testing," Revision 0, April 2003

Pursuant to 10 CFR 50.90, Calvert Cliffs Nuclear Power Plant, Inc. hereby requests an amendment to Renewed Operating License Nos. DPR-53 and DPR-69 to change the frequency of surveillance testing for some engineered safety features (ESF) components.

Integrated testing of each train of ESF components takes place every refueling outage to satisfy various Technical Specification Surveillance Requirements. Both ESF trains are tested, one train at a time. This testing simulates an accident concurrent with a loss-of-offsite power and tests the integrated response of instrumentation and equipment. The testing is intrusive and requires off-normal equipment line-ups during a refueling outage. The proposed amendment changes the Surveillance Frequency for performance of the integrated ESF test from:

> Once per refueling cycle on a sequential basis (both trains are tested every refueling cycle)
>
> to
>
> Once every other refueling cycle on a staggered basis (each train is tested once every two refueling cycles where one train is being tested each refueling cycle on an alternating basis).

The benefits and needs addressed by the proposed change include:

- Reduced potential for plant transients
- Reduced human performance challenges
- Reduced radiological exposure and reduced potential for personnel injury
- Reduce Reactor Coolant System mass addition challenges

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- Reduced equipment wear
- Cost savings

This proposed amendment is based on the justification and methods contained in Westinghouse Topical Report (Reference a). This Topical Report is currently under review by the Nuclear Regulatory Commission. In addition, these proposed changes conform to the format and content of TSTF-450.

The technical basis and significant hazards consideration for this proposed change are provided in Attachment (1). Marked up pages of the affected Technical Specifications are provided as Attachment (2). Typed Technical Specification pages are provided in Attachment (3). Note that amendments approved by the Nuclear Regulatory Commission during the review period for this request may change these typed pages. The Technical Specification Bases will be changed as appropriate to support this amendment.

This proposed change to the Technical Specifications and our determination of significant hazards have been reviewed by our Plant Operations and Safety Review Committee and Offsite Safety Review Committee, and they have concluded that implementation of these changes will not result in an undue risk to the health and safety of the public.

We request that this change be approved by October 1, 2004. As noted above, this proposed change would result in a change to the testing frequency of selected ESF components. This testing is performed during refueling outages. We would like to implement this new testing frequency during the 2005 spring refueling outage. Approval of this request by October 1, 2004 would allow time for scheduling of these tests during the outage.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 14, 2003.

Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

Bruce S. Montgomery
Manager, Engineering Services

BSM/PSF/bjd

Attachments: (1) Technical Basis and Significant Hazards Consideration
(2) Marked up Technical Specification Pages
(3) Final Technical Specification Pages

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File # 09.04
Electronic Docket

NRC 03-052

COMMITMENTS IDENTIFIED IN THIS CORRESPONDENCE:

- None

Posting Requirements for Responses -- NOV/Order **No**

ATTACHMENT (1)

TECHNICAL BASIS AND

SIGNIFICANT HAZARDS CONSIDERATION

TABLE OF CONTENTS

1.0 DESCRIPTION

Integrated testing of each train of engineered safety features (ESF) components takes place every refueling outage to satisfy various Technical Specification Surveillance Requirements. Both ESF trains are tested, one train at a time. This testing simulates an accident concurrent with a loss-of-offsite power and tests the integrated response of instrumentation and equipment. The testing is intrusive and requires off-normal equipment line-ups during a refueling outage. The proposed amendment changes the Surveillance Frequency for performance of the integrated ESF test from:

Once per refueling cycle on a sequential basis (both trains are tested every refueling cycle)

to

Once every other refueling cycle on a staggered basis (each train is tested once every two refueling cycles where one train is being tested each refueling cycle on an alternating basis).

The benefits and needs addressed by the proposed change include:

- Reduced potential for plant transients
- Reduced human performance challenges
- Reduced radiological exposure and reduced potential for personnel injury
- Reduce Reactor Coolant System (RCS) mass addition challenges
- Reduced equipment wear
- Cost savings

This proposed amendment is based on the justification and methods contained in Westinghouse Topical Report (Reference 3). This Topical Report is currently under review by the Nuclear Regulatory Commission (NRC). In addition, these proposed changes conform to the format and content of TSTF-450.

2.0 PROPOSED CHANGES

The affected Technical Specifications and proposed changes are listed below.

Table 2.3A
Surveillance Test Intervals

Surveillance		Existing Frequency	Proposed Frequency
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Actuation channel.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.5.2.5	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.5.2.7	Verify each low pressure safety injection pump stops on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS

Table 2.3A
Surveillance Test Intervals

Surveillance		Existing Frequency	Proposed Frequency
SR 3.6.3.5	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.6.6.7	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.6.8.3	Verify each IRS train actuates on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.7.12.3	Verify each PREVS train actuates on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.7.5.2	Verify each CC automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.7.5.3	Verify each CC pump starts automatically on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.7.6.2	Verify each SRW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.7.6.3	Verify each SRW pump starts automatically on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.7.7.2	Verify each SW System automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months	Deleted, see justification below
SR 3.7.7.3	Verify each SW System pump starts automatically on an actual or simulated actuation signal.	24 months	24 months on a STAGGERED TEST BASIS

Table 2.3A
Surveillance Test Intervals

Surveillance		Existing Frequency	Proposed Frequency
SR 3.8.1.11	------------------------------ NOTE ------------------------------ Momentary transients outside the load and power factor limits do not invalidate this test. --- Verify each DG, operating at a power factor of ≤ 0.85, operates for ≥ 60 minutes while loaded to ≥ 4000 kW for DG 1A and ≥ 3000 kW for DGs 1B, 2A, and 2B.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.8.1.12	Verify each DG rejects a load ≥ 500 hp without tripping.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.8.1.14	Verify each DG: a. Synchronizes with offsite power source while loaded upon a simulated restoration of offsite power; b. Manually transfers loads to offsite power source; and c. Returns to ready-to-load operation.	24 months	24 months on a STAGGERED TEST BASIS
SR 3.8.1.15	------------------------------ NOTE ------------------------------ All DG starts may be preceded by an engine prelube period. --- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated Engineered Safety Feature actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and; 1. energizes permanently connected loads in ≤ 10 seconds, 2. Energizes auto-connected emergency loads through load sequencer; 3. maintains steady state voltage ≥ 4060 V and ≤ 4400 V, 4. maintains steady state frequency of ≥ 58.8 Hz and ≤ 61 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months	24 months on a STAGGERED TEST BASIS

One additional change is also discussed. Based on Calvert Cliffs' current configuration, Surveillance Requirement 3.7.7.2 is no longer applicable. In 1998 and 1999, Calvert Cliffs replaced the existing service water heat exchangers with new plate and frame heat exchangers. Reference 1 requested NRC approval of an Unreviewed Safety Question associated with this modification. One of the items specifically reviewed was the removal of the Safety Injection Actuation Signal from the saltwater outlet valves serving the new heat exchangers. In Reference 2, the NRC specifically approved the removal of the Safety Injection Actuation Signal from these valves. This signal was tested by Surveillance Requirement 3.7.7.2. Since the valves are no longer controlled by an actuation signal, they are not tested as part of this Surveillance Requirement. As part of the initial request, we failed to request the removal of this Surveillance Requirement. These are the only valves that the Surveillance Requirement pertained to. Therefore, based on the prior NRC approval of the removal of the signal from the affected valves, we now request deletion of the associated Surveillance Requirement.

3.0 BACKGROUND

The longer Surveillance Frequency and staggered testing will reduce potential challenges to the plant and reduce equipment wear and personnel exposure. The following sections discuss the range of benefits with regard to plant and industry experience. They are consistent with the benefits described in Reference 3.

Reduction in Potential for Transients

The potential for unexpected transients is increased during the period of time when the plant is being lined up for the integrated ESF test, through test performance, and restoration following the test. This potential results from the need to establish special test conditions to perform the test while maintaining safe shutdown conditions. Examples of the special conditions include: abnormal valve alignments, installing jumpers, lifting leads, and placing breakers in "TEST" position. Within the industry, transients that have occurred concurrent with integrated ESF testing include: inadvertently transferring water to the containment sump, overflowing the refueling water storage tank, and exceeding the maximum overpressure in the volume control tank. Reducing the amount of testing (one train versus both trains), will reduce the potential for these and similar transients during the refueling outage.

The integrated ESF test requires one 4 kV bus to be isolated from the normal (offsite) power supply while being fed by a diesel generator (DG). This configuration is less reliable than the normal bus line-up and increases the likelihood of losing the bus (if the DG fails). At the conclusion of the integrated ESF test, operators must restore the normal bus line-up by paralleling offsite power to the bus. This infrequent evolution also introduces additional risk of losing the bus.

Reduction in Human Performance Challenges

During a typical refueling outage there are extra personnel in the plant performing a variety of tasks. Many systems/components are tagged out to support outage maintenance activities. Events have occurred as a result of breakdowns in communications and administrative controls which have challenged plant staff to maintain configuration control of the plant. For example, there have been conflicts when performing pre-test system alignment and clearing tags to return a component to service. Although Calvert Cliffs has successfully managed these challenges, reducing the amount of required testing and abnormal system alignments to support the testing will help reduce the human performance pressures on plant personnel as they strive to do the work and at the same time maintain the plant safely shutdown. Staggered integrated ESF testing will improve scheduling and coordination of outage activities centered on safety-related equipment maintenance minimizing impacts on shutdown safety. It will also reduce the number of potential challenges to containment closure.

Reduction in Radiation Dose to Personnel (ALARA)

Setting up for and restoration from integrated ESF testing requires a number of off-normal conditions to be established by operators and technicians. Valve alignments may require accessing radiation areas or contaminated areas in the Auxiliary Building and the Containment. During the test, operators may also have to be stationed in these remote locations to observe equipment response and collect data. Many of these actions also require independent verifications. Therefore, radiation exposure is an expected result of running the test. The proposed change to a staggered test frequency would reduce the amount of testing and result in a proportional savings in avoidable radiation exposure. This would help the plant realize the lowest achievable radiation exposure for the outage.

Reduction in RCS Mass Additions Challenges

Integrated ESF testing involves testing the response of an entire ESF train to various actuation signals. This includes starting the high pressure safety injection, low pressure safety injection, and containment spray pumps on minimum-flow recirculation. System pre-test alignments are designed to avoid moving water into the primary system. However, these pumps are more than capable of injecting water into the RCS if an isolation valve or check valve leaks-by or is misaligned. Primary system conditions during the test (Mode 5 or 6) are cold and depressurized. Even though low temperature overpressure protection requirements will be in effect, it is important to minimize the opportunities for inadvertent mass additions to the primary system while shutdown.

Reduction in Safety Equipment Wear and Tear

By necessity, ESF system equipment is operated during testing, since proving operability is the primary purpose of periodic testing. It is this wear-and-tear on equipment that could be limited by reducing the amount of integrated ESF testing performed during the outage.

For example, the high pressure safety injection, low pressure safety injection, and containment spray pumps must be operated for a period of time with only minimum recirculation flow. The pumps are designed to operate in this condition, but it is desirable to limit the duration of operation at low flow rates to the extent possible. This operating condition contributes to wear-and-tear on the pumps and system components.

Finally, the quick transition from standby to near full power output results in undesirable thermal stresses and wear in the diesel engine itself.

Reduction in Operation and Maintenance Costs

Integrated ESF testing is the most expensive test performed during the outage. It is expensive because it takes a large amount of time and resources to execute safely. Because the test is considered an infrequent test, a separate dedicated team is deployed. The team is assembled several days prior to the test for training. The training is very detailed and includes operations, maintenance, engineering, quality assurance, and health physics personnel. Many activities must be coordinated. The team is used to perform the pre-test activities, execute the test, and restore systems to normal after the test. By cutting the integrated ESF testing each outage in half, thousands of dollars in labor costs can be saved each outage.

4.0 TECHNICAL ANALYSIS

DETERMINISTIC ASSESSMENT OF THE CHANGE

The plant has two safety-related ESF trains per unit. Any combination of two of the DGs (one from each unit) is capable of supplying sufficient power for the operation of necessary ESF loads during accident conditions on one unit and shutdown loads on the alternate unit concurrent with loss-of-offsite power, and for the safe and orderly shutdown of both units under loss-of-offsite power conditions. The DGs start automatically on a safety injection actuation signal or an undervoltage condition on the busses that supply vital loads and are ready to accept loads within ten seconds. The design provides for operation of two trains of equipment for shutting down the accident unit.

All necessary ESFs are duplicated and power supplies are so arranged so that the failure to energize any one of the applicable busses, or the failure of one DG to start, will not prevent the proper operation of the ESF systems.

Defense in Depth

The impact of the proposed Surveillance Frequency change was evaluated and determined to be consistent with the defense-in-depth philosophy. The defense-in-depth philosophy in reactor design and operation results in multiple means to accomplish safety functions and prevent release of radioactive material.

- A reasonable balance among preventing core damage, preventing containment failure, and consequence mitigation is preserved.

  The Surveillance Frequency change does not effect the ability of the ESF systems to prevent core damage nor does it effect containment integrity. The change neither degrades core damage prevention at the expense of containment integrity, nor does it degrade containment integrity at the expense of core damage prevention. The balance between preventing core damage and preventing containment failure is the same. Consequence mitigation remains unaffected by the proposed changes. Furthermore, no new accident or transient is introduced with the requested change, and the likelihood of an accident or transient is not impacted. Conversely, the staggered Surveillance Frequency may reduce the likelihood of a test-induced transient or accident. This last item is an unquantified benefit of the Surveillance Frequency change.

- Requires no new programmatic activities to compensate for test interval change.

  The plant design will not be changed to accommodate the proposed Surveillance Frequency change. All safety systems, including the Engineered Safety Feature Actuation System (ESFAS), will still function in the same manner with the same signals available to trip the reactor and initiate ESF functions, and there will be no additional reliance on additional systems, procedures, or operator actions. The calculated risk increase for these proposed changes is very small and additional control processes are not required to compensate for any risk increase.

- System redundancy, independence, and diversity are maintained commensurate with the expected frequency and consequences of challenges to the system.

  There is no impact on either the redundancy, independence, or diversity of the ESFAS or of the ability of the plant to respond to events with diverse systems. The ESFAS is a diverse and redundant system and will remain so. There will be no change to the signals available to trip the reactor or initiate an ESFAS actuation.

- Defenses against potential common cause failures are maintained, and the potential for introduction of new common cause failure mechanisms have been assessed.

  Defenses against common cause failures are maintained. The Surveillance Frequency change requested is not sufficiently long to expect new common cause failure mechanisms to arise. In addition, the operating environment for these components remains the same, therefore no new common cause failure modes are expected. In addition, backup systems and operator actions are not impacted by these changes; and there are no common cause links between the ESFAS and these backup options.

- Independence of barriers is not degraded.

  The barriers protecting the public and the independence of these barriers are maintained. With the staggered Surveillance Frequency, it is not expected that the plant will have multiple systems out-of-service simultaneously that could lead to degradation of these barriers and an increase in risk to the public.

- Defenses against human errors are maintained.

  No new operator actions related to the Surveillance Frequency change are required. No additional operating or maintenance procedures have been introduced, or have to be revised (except to note the new test frequency) because of the Surveillance Frequency change and no new at-power test or maintenance activities are expected to occur as a result of the Surveillance Frequency change.

Testing History

Calvert Cliffs has reviewed the performance of the integrated ESFAS test for the past ten years (a total of 25 tests). The test results indicate that equipment failures, which affected the ESFAS Technical Specification surveillance test requirements, were rare (two occurrences), have not recently occurred (occurred in the 1995 and 1996), and have not reoccurred. For all tests, equipment failures did not result in a diesel generator failure to start or a diesel generator to accept sequenced loads.

Safety Margins

The proposed change in Surveillance Frequency does not change the compliance to any codes or standards that have been previously committed to or the margin to safety analysis acceptance criteria contained within the licensing bases.

PROBABILISTIC ASSESSMENT OF THE CHANGE

A risk analysis was used to determine the acceptability of this proposed change. Increasing the Surveillance Requirement Frequency increases the likelihood of undetected equipment failure. This creates a change in plant risk. This change in risk is analyzed and quantified using probabilistic risk assessment techniques. The risk analysis used the method developed by Westinghouse that is described in Reference 3.

The following explanation is a brief overview of the approach and methods used in the Reference 3. The approach is based on guidance contained in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." The Topical Report (Reference 3) demonstrates that any change in risk will be negligible if a Staggered Test Basis Frequency is adopted for integrated ESF testing. The basic premise of the Topical Report (Reference 3) is that the integrated test is not the primary or sole Operability test for the majority of the components tested. Other surveillance procedures are performed on many of these components and functions on a more frequent basis. Therefore, there may be considerable overlap between these other tests and the integrated test. For the components/functions that are tested only by the integrated test, the risk associated with the change is recalculated, the risk model is adjusted, separate effects tests are performed and the overall risk is quantified. In some cases, it is possible to develop a reasonable deterministic basis for assuming the component failure mode addressed by the integrated test is not risk-significant. These components are exempted from further Probabilistic Safety Analysis (PSA) review and analysis.

As described in Reference 3, a database was created for each participating plant to develop a matrix showing the overlap in ESF testing as related to the integrated tests. Review of the data shows that many of the components tested by the integrated ESF test are also tested by other, more frequently performed tests. However, there are several components or functions tested only by the integrated tests. A categorization scheme was used to facilitate the evaluation of all of the components tested by each participant's integrated ESF procedure. The categorization is based on both the procedure review of all applicable plant specific Technical Specification surveillance procedures and a review of each plant's

PSA model data. This consisted of the surveillance procedures, the list of basic events from participant PSA models, miscellaneous plant engineering documents such as responses to Generic Letter 96-01, and plant drawings. A second database was prepared to combine selected elements of the procedure review database with the PSA basic elements. The purpose of this effort was to sub-categorize all components tested solely/primarily by the integrated test. A report was prepared for plant PSA staff to be used in quantifying the risk that provides consistent and concise instructions for each participating plant to ensure continuity. The technical details in support of the safety arguments are addressed in Reference 3.

The risk contribution associated with the staggered, integrated ESF test has been quantitatively evaluated using the current plant-specific probabilistic risk assessment for Calvert Cliffs Units 1 and 2. The proposed change results in a small, but acceptable, risk increase. There are also some risk reductions associated with averting unnecessary plant transients and with reduced risk during shutdown operations, however, these reductions were not quantified.

The risk analysis provides results that show the proposed change in ESF component surveillance testing Frequency meets the guidance of Regulatory Guide 1.174.

CONCLUSION

As described above, the proposed change has been evaluated from both a deterministic and probabilistic approach. From a deterministic perspective, the proposed change does not reduce the defense-in-depth or the safety margins associated with integrated ESF testing. A risk contribution has also been determined for this proposed change. The proposed change results in a small, but acceptable, risk increase in accordance with the guidance of Regulatory Guide 1.174. Therefore, based on both deterministic and probabilistic evaluations, we find this proposed amendment acceptable.

5.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Integrated testing of each train of engineered safety features (ESF) components takes place every refueling outage to satisfy various Technical Specification Surveillance Requirements. Both ESF trains are tested, one train at a time. This testing simulates an accident concurrent with a loss-of-offsite power and tests the integrated response of instrumentation and equipment. The testing is intrusive and requires off normal equipment line-ups during a refueling outage. The proposed change would extend the ESF Surveillance Requirement Frequency, so that one train is tested each outage, with each train being tested every other outage. The scope of the testing and the methods used in the testing will remain unchanged.

In addition, a Surveillance Requirement is being deleted because the components tested are no longer installed in the plant.

1. *Would not involve a significant increase in the probability or consequences of an accident previously evaluated·*

   Integrated testing of the ESF trains takes place while the unit is shut down. The equipment being tested is normally used to respond to an accident when the Unit is in Modes 1, 2, or 3. Changing the test Frequency to a longer period does not affect the scope of the testing or the methods used during the testing. Therefore, there is no increase in the probability of an accident previously evaluated caused by the testing itself.

   The components tested during the integrated ESF test are components needed to mitigate the consequences of an accident. Increasing the length of time between integrated tests increases the likelihood of undetected equipment failure. This creates a change in plant risk. This change in risk is analyzed and quantified using probabilistic risk assessment techniques. The risk analysis provides results that show the proposed increase in ESF component surveillance testing Frequency meets the guidance of Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." The increase in risk is within the guidelines of the regulatory guidance. There is no significant change in the probability that the equipment will suffer an undetected failure in the increased time between Surveillance tests. Therefore, there is no significant increase in the consequences on an accident previously evaluated.

An additional change is proposed to delete a Surveillance Requirement because the signal tested in the Surveillance Requirement is no longer installed in the plant. This deletion has no impact on plant operations or the response of the plant in an accident previously evaluated.

Therefore, the proposed change does not involve a significant increase in the probability or consequence of an accident previously evaluated.

2. *Would not create the possibility of a new or different kind of accident from any accident previously evaluated·*

The proposed change would extend the Surveillance Frequency of the integrated ESF test. This change does not affect the scope of the testing or the methods used during the testing. Plant equipment will continue to operate as designed. Only the testing frequency is changed. Because there are no changes in the scope or method of testing and this proposed change does not affect the operation of the equipment in other circumstances, no new accident initiators have been introduced.

An additional change is proposed to delete a Surveillance Requirement because the signal tested in the Surveillance Requirement is no longer installed in the plant. This deletion has no impact on plant operations or the response of the plant and therefore would not create the possibility of a new or different kind of accident from any previously evaluated.

Therefore, this proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. *Would not involve a significant reduction in the margin of safety·*

Surveillance testing is performed to evaluate the operability of equipment used to perform safety functions at the Unit. The components tested during the integrated ESF test are components needed to mitigate the consequences of an accident. Increasing the length of time between integrated tests increases the likelihood of undetected equipment failure. This creates a change in plant risk. This change in risk is analyzed and quantified using probabilistic risk assessment techniques. The risk analysis provides results that show the proposed increase in ESF component surveillance testing Frequency meets the guidance of Regulatory Guide 1.174. The increase in risk is within the guidelines of the regulatory guidance. There is no significant change in the probability that the equipment will suffer an undetected failure in the increased time between Surveillance tests. Since the function of Surveillance testing is to evaluate the operability of equipment, and the increased time between Surveillance tests has been evaluated and found to be acceptable under regulatory guidance, the proposed change would not involve a significant reduction in the margin of safety.

An additional change is proposed to delete a Surveillance Requirement because the signal tested in the Surveillance Requirement is no longer installed in the plant. This deletion has no impact on plant operations or the response of the plant in an accident and does not impact the margin of safety.

Therefore, this proposed change does not significantly reduce the margin of safety.

6.0 ENVIRONMENTAL CONSIDERATION

We have also determined that operation with the proposed change would not result in any significant change in the types or amounts of any effluents that may be released offsite, nor would it result in any significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed change is eligible for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is needed in connection with the proposed amendment.

7.0 PRECEDENCE

- Fort Calhoun (Omaha Public Power District) – submitted July 25, 2003.

8.0 REFERENCES

1. Letter from C. H. Cruse (BGE) to Document Control Desk (NRC), dated May 16, 1997, License Amendment Request: Service Water Heat Exchangers Replacement
2. Letter from A. W. Dromerick (NRC) to C. H. Cruse (BGE), dated February 10, 1998, Issuance of Amendment for Calvert Cliffs Nuclear Power Plant, Unit 1 (TAC No. M98784)
3. Westinghouse Topical Report WCAP-15830-P, "Staggered Integrated ESF Testing," Revision 0, April 2003

ATTACHMENT (2)

MARKED UP TECHNICAL SPECIFICATION PAGES

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	------------------NOTES------------------ 1. Testing of Actuation Logic shall include verification of the proper relay driver output signal. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested once per 24 months. --- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Actuation Logic channel.	92 days
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Actuation channel.	24 months
SR 3.3.5.3	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Actuation channel.	24 months on a STAGGERED TEST BASIS

Table 3.3.5-1 (page 1 of 2)
Engineered Safety Features Actuation System
Actuation Logic and Manual Actuation Applicability

FUNCTION	SURVEILLANCE REQUIREMENTS	APPLICABLE MODES
1. Safety Injection Actuation Signal[a]		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
2. Containment Spray Actuation Signal		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
3. Containment Isolation Signal		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
4. Steam Generator Isolation Signal		
a. Manual Actuation (Main Steam Isolation Valve Handswitches and Feedwater Header Isolation Handswitches)	SR 3.3.5.2	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
5. Containment Sump Recirculation Actuation Signal		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
6. Auxiliary Feedwater Actuation System Signal		
a. Manual Start	SR 3.3.5.2	1,2,3
b. Actuation Logic	SR 3.3.5.1	1,2,3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed. Valve Number / Position / Function MOV-659 / Open / Mini-flow Isolation ~~MOV-660 / Open / Mini-flow Isolation~~ CV-306 / Open / Low Pressure Safety Injection Flow Control	12 hours
SR 3.5.2.2	Verify each ECCS manual, power-operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.2.3	Verify each high pressure safety injection and low pressure safety injection pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.4	Verify each required charging pump develops a flow of ≥ 37 gpm.	In accordance with the Inservice Testing Program
SR 3.5.2.5	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.5.2.7	Verify each low pressure safety injection pump stops on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.5.2.8	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	24 months
SR 3.5.2.9	Verify the Shutdown Cooling System open-permissive interlock prevents the Shutdown Cooling System suction isolation valves from being opened with a simulated or actual Reactor Coolant System pressure signal of $\geq$ 309 psia.	24 months

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.6.3.3	-------------------NOTE------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.4	Verify the isolation time of each automatic power-operated containment isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.6.3.5	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	24 months ON A STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each containment spray manual, power-operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.6.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6.3	Verify each containment cooling train cooling water flow rate is ≥ 2000 gpm to each fan cooler.	31 days
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months ON A STAGGERED TEST BASIS
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	24 months ON A STAGGERED TEST BASIS
SR 3.6.6.7	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	24 months ON A STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.8.2	Perform required IRS filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.6.8.3	Verify each IRS train actuates on an actual or simulated actuation signal.	24 months ON A STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	-------------------NOTE------------------ Isolation of CC flow to individual components does not render the CC System inoperable. --- Verify each CC manual, power-operated, and automatic valve in the flow path servicing safety-related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.5.2	Verify each CC automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.7.5.3	Verify each CC pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.6.2	Verify each SRW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.7.6.3	Verify each SRW pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	-------------------NOTE------------------- Isolation of SW System flow to individual components does not render SW inoperable. -- Verify each SW System manual, power-operated, and automatic valve in the flow path servicing safety-related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.7.2	~~Verify each SW System automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.~~ Not Used	~~24 months~~
SR 3.7.7.3	Verify each SW System pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.12.3	Verify each PREVS train actuates on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	Verify interval between each sequenced load block is within ± 10% of design interval for the load sequencer.	31 days
SR 3.8.1.9	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. --	
	Verify each DG starts from standby condition and achieves, in ≤ 10 seconds, voltage > 4060 V and frequency > 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 4060 V and ≤ 4400 V and frequency of > 58.8 Hz and ≤ 61.2 Hz.	184 days
SR 3.8.1.10	Verify manual transfer of AC power sources from the normal offsite circuit to the alternate offsite circuit.	24 months
SR 3.8.1.11	-------------------NOTE------------------- Momentary transients outside the load and power factor limits do not invalidate this test. --	
	Verify each DG, operating at a power factor of ≤ 0.85, operates for ≥ 60 minutes while loaded to ≥ 4000 kW for DG 1A and ≥ 3000 kW for DGs 1B, 2A, and 2B.	24 months on a STAGGERED TEST BASIS
SR 3.8.1.12	Verify each DG rejects a load ≥ 500 hp without tripping.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	Verify that automatically bypassed DG trips are automatically bypassed on an actual or simulated required actuation signal.	24 months
SR 3.8.1.14	Verify each DG: a. Synchronizes with offsite power source while loaded upon a simulated restoration of offsite power; b. Manually transfers loads to offsite power source; and c. Returns to ready-to-load operation.	24 months ON A STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	-------------------NOTE------------------ All DG starts may be preceded by an engine prelube period. -- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated Engineered Safety Feature actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. maintains steady state voltage ≥ 4060 V and ≤ 4400 V, 4. maintains steady state frequency of ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months ON A STAGGERED TEST BASIS

ATTACHMENT (3)

FINAL TECHNICAL SPECIFICATION PAGES

Calvert Cliffs Nuclear Power Plant, Inc.
October 14, 2003

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	------------------ NOTES ------------------ 1. Testing of Actuation Logic shall include verification of the proper relay driver output signal. 2. Relays associated with plant equipment that cannot be operated during plant operation are only required to be tested once per 24 months. --- Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Actuation Logic channel.	92 days
SR 3.3.5.2	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Actuation channel.	24 months
SR 3.3.5.3	Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Actuation channel.	24 months on a STAGGERED TEST BASIS

Table 3.3.5-1 (page 1 of 2)
Engineered Safety Features Actuation System
Actuation Logic and Manual Actuation Applicability

FUNCTION	SURVEILLANCE REQUIREMENTS	APPLICABLE MODES
1. Safety Injection Actuation Signal[a]		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
2. Containment Spray Actuation Signal		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
3. Containment Isolation Signal		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
4. Steam Generator Isolation Signal		
a. Manual Actuation (Main Steam Isolation Valve Handswitches and Feedwater Header Isolation Handswitches)	SR 3.3.5.2	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
5. Containment Sump Recirculation Actuation Signal		
a. Manual Actuation	SR 3.3.5.3	1,2,3,4
b. Actuation Logic	SR 3.3.5.1	1,2,3
6. Auxiliary Feedwater Actuation System Signal		
a. Manual Start	SR 3.3.5.2	1,2,3
b. Actuation Logic	SR 3.3.5.1	1,2,3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed. Valve Number / Position / Function MOV-659 Open Mini-flow Isolation MOV-660 Open Mini-flow Isolation CV-306 Open Low Pressure Safety Injection Flow Control	12 hours
SR 3.5.2.2	Verify each ECCS manual, power-operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.2.3	Verify each high pressure safety injection and low pressure safety injection pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.4	Deleted	
SR 3.5.2.5	Verify each ECCS automatic valve that is not locked, sealed, or otherwise secured in position, in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.5.2.7	Verify each low pressure safety injection pump stops on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.5.2.8	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	24 months
SR 3.5.2.9	Verify the Shutdown Cooling System open-permissive interlock prevents the Shutdown Cooling System suction isolation valves from being opened with a simulated or actual Reactor Coolant System pressure signal of $\geq$ 309 psia.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.3	-------------------NOTE------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.4	Verify the isolation time of each automatic power-operated containment isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.6.3.5	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each containment spray manual, power-operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.6.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6.3	Verify each containment cooling train cooling water flow rate is ≥ 2000 gpm to each fan cooler.	31 days
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.6.6.7	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.8.2	Perform required IRS filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.6.8.3	Verify each IRS train actuates on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	-------------------NOTE------------------- Isolation of CC flow to individual components does not render the CC System inoperable. -- Verify each CC manual, power-operated, and automatic valve in the flow path servicing safety-related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.5.2	Verify each CC automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.7.5.3	Verify each CC pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.6.2	Verify each SRW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS
SR 3.7.6.3	Verify each SRW pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	-------------------NOTE------------------- Isolation of SW System flow to individual components does not render SW inoperable. -- Verify each SW System manual, power-operated, and automatic valve in the flow path servicing safety-related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.7.2	Not used.	
SR 3.7.7.3	Verify each SW System pump starts automatically on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.12.3	Verify each PREVS train actuates on an actual or simulated actuation signal.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	Verify interval between each sequenced load block is within ± 10% of design interval for the load sequencer.	31 days
SR 3.8.1.9	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves, in ≤ 10 seconds, voltage > 4060 V and frequency > 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 4060 V and ≤ 4400 V and frequency of > 58.8 Hz and ≤ 61.2 Hz.	 184 days
SR 3.8.1.10	Verify manual transfer of AC power sources from the normal offsite circuit to the alternate offsite circuit.	24 months
SR 3.8.1.11	-------------------NOTE------------------- Momentary transients outside the load and power factor limits do not invalidate this test. -- Verify each DG, operating at a power factor of ≤ 0.85, operates for ≥ 60 minutes while loaded to ≥ 4000 kW for DG 1A and ≥ 3000 kW for DGs 1B, 2A, and 2B.	 24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	Verify each DG rejects a load ≥ 500 hp without tripping.	24 months on a STAGGERED TEST BASIS
SR 3.8.1.13	Verify that automatically bypassed DG trips are automatically bypassed on an actual or simulated required actuation signal.	24 months
SR 3.8.1.14	Verify each DG: a. Synchronizes with offsite power source while loaded upon a simulated restoration of offsite power; b. Manually transfers loads to offsite power source; and c. Returns to ready-to-load operation.	24 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	------------------NOTE------------------ All DG starts may be preceded by an engine prelube period. -- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated Engineered Safety Feature actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. maintains steady state voltage ≥ 4060 V and ≤ 4400 V, 4. maintains steady state frequency of ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months on a STAGGERED TEST BASIS